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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,624	06/30/2003	Mustafa Pinarbasi	SJO920000110US2	1373

7590

07/29/2004

Hitachi Global Sstorage Technologies  
NHGB/0142  
5600 Cottle Road  
San Jose, CA 95193

EXAMINER
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KIM, PAUL D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/611,624

Applicant(s)

PINARBASI, MUSTAFA

Examiner

Paul D Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31,32,40,43 and 44 is/are rejected.
- 7) ☒ Claim(s) 33-39,41,42 and 45-51 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 32-42 and 44-51 are objected to because of the following informalities:

The phrase "A method" as recited in line 1 appears to be --The method--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 31 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Jongill et al. (US PAT. 6,759,120).

Jongill et al. teach a process of manufacturing a magnetoresistive film comprising steps of: making a spin valve sensor (10) including the steps of: forming a ferromagnetic pinned layer (3) that has a magnetic moment; forming a pinning layer (2) exchange coupled to the pinned layer for pinning the magnetic moment of the pinned layer; forming a free layer (5,6); forming a nonmagnetic conductive spacer layer (4) between the free layer and the pinned layer; forming a capping layer (8) with the free layer being

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located between the spacer layer and the capping layer; forming the free layer with an oxidized film portion (6) and an unoxidized film portion (5) with the oxidized film portion being located between the unoxidized film portion and the capping layer; and forming a copper layer (7) between the oxidized film portion of the free layer and the capping layer as shown in Fig. 3 (see also, col. 11, line 58 to col. 16, line 65). According to Fig. 6, the copper layer (7') is oxidized to change to the copper oxide layer (7).

As per claim 40 the unoxidized film portion of the free layer is formed as a cobalt iron film (Co-Fe) and the oxidized film portion of the free layer is formed as a cobalt iron oxide film as disclosed in col. 13, lines 28-38).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 32, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jongill et al. in view of Pinarbasi (US PAT. 6,404,606).

Jongill et al. teach all of the limitations as set forth above. However, Jongill et al. do not teach a process of forming a read (as per claims 32 and 43) and write head (as per claim 43). Pinarbasi teaches a process of forming a read and write head comprising steps of: making the write head (as per claim 43) including the steps of: forming ferromagnetic first and second pole piece layers (P1,P2) in pole tip (98,100), yoke (94)

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and back gap regions (96) wherein the yoke region is located between the pole tip and back gap regions; forming a nonmagnetic nonconductive write gap layer (102) between the first and second pole piece layers in the pole tip region; forming an insulation stack (88) with at least one coil layer (84) embedded therein between the first and second pole piece layers in the yoke region; and connecting the first and pole piece layers at said back gap region (96); and making the read head (as per claims 32 and 43) including the steps of: forming nonmagnetic nonconductive first and second read gap layers(76,78); forming the spin valve sensor (equivalent with the magnetoresistive film) between the first and second read gap layers; forming ferromagnetic first and second shield layers (S1,S2); forming the first and second read gap layers between the first shield layer and the first pole piece layer; and forming a nonmagnetic isolation layer (103) between the second shield layer and the first pole piece layer as shown in Fig. 6 (see also col. 6,lines 5-38). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have provided a process of making the spin valve sensor (equivalent with the magnetoresistive film) of Jongill et al. by processes of forming a read and write head as taught by Pinarbasi in order to produce a complete magnetic head with the spin valve sensor (equivalent with the magnetoresistive film).

***Allowable Subject Matter***

6. Claims 33-39, 41, 42 and 45-51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter: The unoxidized film portion of the free layer is formed as a nickel iron film and the oxidized film portion of the free layer is formed as a nickel iron oxide film (as per claims 33 and 45).

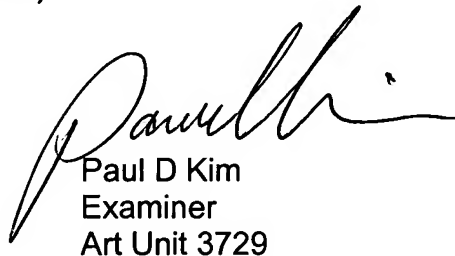
***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 703-308-8356. The examiner can normally be reached on Tuesday-Friday between 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul D Kim  
Examiner  
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